Lobster Transplant to Masset Inlet

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June 1983

Canadian Technical Report of Fisheries and Aquatic Sciences No. 1181

Canadian Technical Report of Fisheries and Aquatic Sciences

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Cat. No. FS 97-6/1181 ISSN 0706-6457

Correct citation for this publication:

Barber, F.G. 1983. Lobster transplant to Masset Inlet.
Can. Tech. Rep. Fish. Aquat. Sci. 1181:iv+6p.

ABSTRACT

Barber, F.G. 1983. Lobster transplant to Masset Inlet. Can. Tech. Rep. Fish. Aquat. Sci. 1181:iv+6p.

Present understanding of the Masset system suggests it may permit successful transplant of the Atlantic lobster.

RESUME

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Nos connaissances actuelles du système Masset donnent à penser qu'il serait possible de l'utiliser avec succès pour transplanter des homards de l'Atlantique.

Atlantic Biological Station of the then Fisheries Research Board of Canada at St. Andrews (photographs by G.L. Pickard 3 August 1950). As a unit of ABS the Atlantic Oceanographic Group provided support in ocean survey and research to a variety of fishery programs (e.g. Kask 1960).

The idea I pursue briefly here occurred to me following a conversation with H.B. Hachey, then Chief Oceanographer for the Fisheries Research Board of Canada at the Atlantic Biological Station (frontispiece), in which he remarked that given the distribution of dissolved oxygen I (1958) had just described for the west coast, it was doubtful that the Atlantic lobster could become significant to a west coast fishery. It was his opinion that the east coast inshore lobster stock is in part maintained by populations in deeper offshore water, where contrary to our west coast, dissolved oxygen concentrations are generally high. Subsequently I noted Scarratt's (1979; see also Anon. 1978) comment about the increasing evidence concerning the importance of the offshore grounds to the inshore east coast stocks and was led to examine whether there exists an adequately deep area on our west coast, perhaps separated from the ocean, in which the dissolved oxygen over the sea floor might be appropriately high. A brief summer survey of the Masset system in 1953 (Anon. 1955) had indicated relatively high values of dissolved oxygen in the main inlet (7 mgl^{-1} at 80 m) and, in addition, it appeared that the coupling of the surface water of the Masset system to Dixon Entrance was considerably less than occurs between most west coast inlets and the ocean (Stockner and Levings 1982; Murty et al. 1980), which might serve to inhibit dispersal of juvenile forms out of system; the Fatty Basin experiment (e.g. Herlinveaux 1966) had suggested this was an important aspect. The possibility exists therefore that these characteristics of Masset Inlet provide an environment (perhaps unique on the west coast) to which the lobster may be successfully transplanted (notes 1 and 2).

Adams (1948), Anon. (1946), Butler (1964) and Ghelardi and Shoop (1972) reviewed the experience with attempts at lobster introductions to the B.C. coast, including that to the Melville Arm (Fig.1) of Prince Rupert Harbour (Faulkner 1958). Ghelardi and Shoop also described «key factors» (note 3) necessary to the successful introduction and by way of example selected two coastal areas that appeared worthy of consideration. They con-

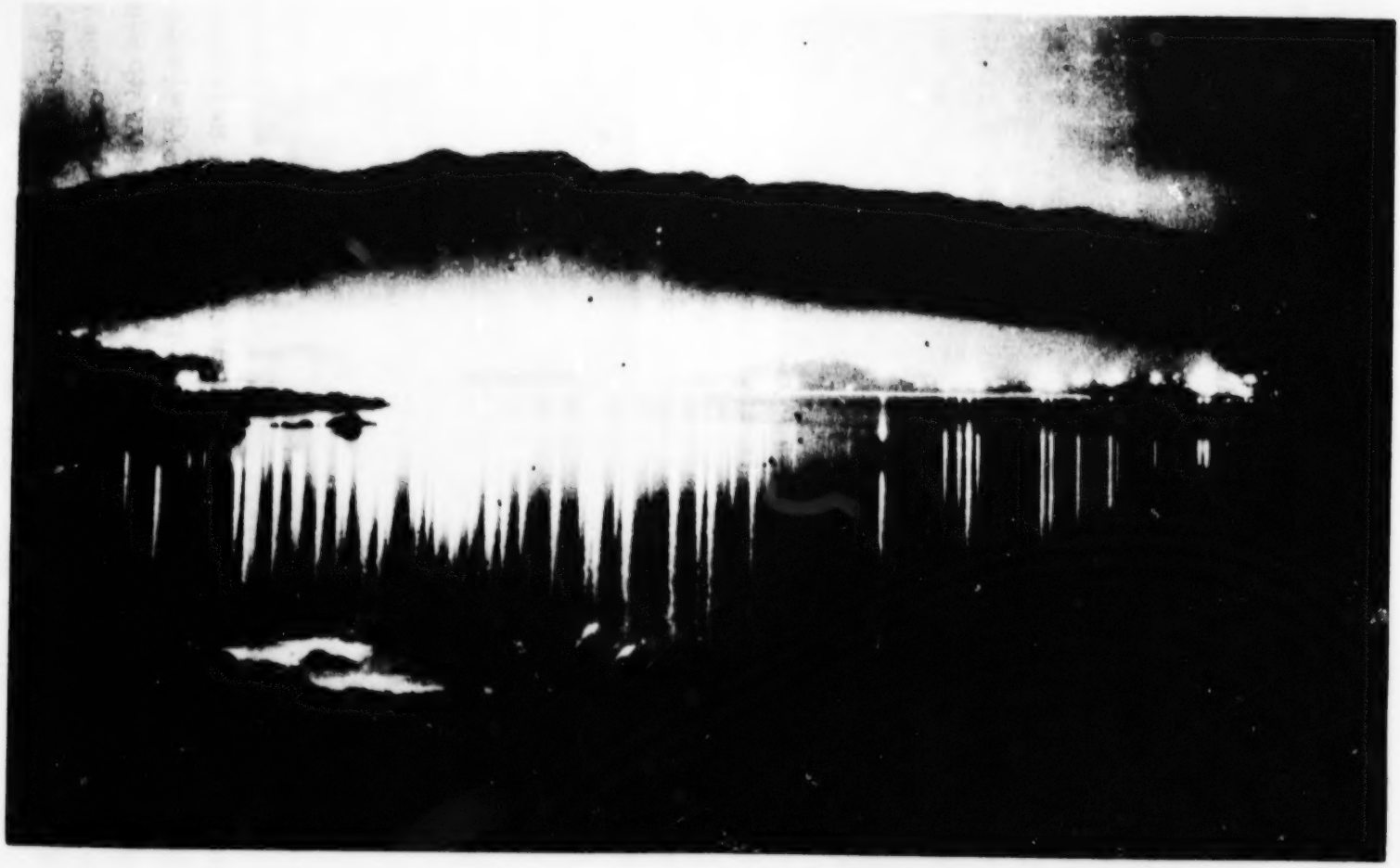

Figure 1. Reproduction of a photograph of Prince Rupert from a site in Melville Arm (by W.A. Hadden, 1939).

cluded that even a suitable site would require «a transplant on a very large scale». Masset Inlet approaches the dimension of their smaller site so that the number of transplants (adults and juveniles, their Table 3) necessary in the inlet should be feasible.

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NOTES

1) Fertilization of Masset Inlet as recently considered (Stockner and Levings 1982) could initiate eutrophication and perhaps contribute to a decrease in dissolved oxygen at depth; however, this is not apparent in lakes so fertilized (C.D. McAllister; K. Stephens, personal communications).

2) I recall being told in the 1930's about a transplant attempt (probably of the oyster) early this century to Serpentine Inlet, Porcher Island (an attempt by an immigrant from Japan), but I have not attempted to substantiate this. (The name «Serpentine» was used locally for the inlet before WW2 and interestingly the name occurs with the attempt to transplant the eastern oyster to Boundary Bay (Elsey 1933; Quayle 1964,

p.1156)). In the first paragraph of his letter Faulkner (1958) remarked that oyster transplants had been attempted in waters adjacent to Prince Rupert and in the years following the spread of the Pacific oyster in the Strait of Georgia such transplant attempts have occurred to many sites along the coast (D.B. Quayle personal communication), including Masset Inlet. The transplant of a clam to the inlet has also been attempted (Anon. 1966, p.22).

3) Ghelardi and Shoop (1972, p.6) did not include the distribution of dissolved oxygen in their «key factors», but did include the «conservation of larvae» by the character of the physical environment (physical oceanography). Some believe that predation, mainly by ling cod and the octopus, could also prove a key factor (D.B. Quayle personal communication).

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